CONSOLIDATED LEARNING OBJECTIVES AGING MODULE 2013

MONDAY NOVEMBER 11

Orientation to aging module: None specific. Just an introduction to the week

Ms. Benford; Age 50

- Articulate a cogent argument for the idea that "Aging is not a disease"
- Be able to describe and give at least one clinical example of how medical conditions in older patients are commonly
    - Chronic
    - Multiple
    - Multifactorial

Introduction to the BIG 10:

- Explain each of the BIG 10 principles of Geriatric Medicine
- Explain the concept of functional status
- Explain the concept of quality of life
- Explain the concept of an interdisciplinary team
- Identify at least four hazards resulting from living home alone
- Explain the two common types of advance directives
- KEY WORDS AND PHRASES:
    - Geriatrics
    - Geriatrician
    - Silver Tsunami
    - Assisted Living Facility
    - Nursing home
    - Iatrogenic illness
    - Polypharmacy
    - Advance directive

Basic Science of Aging:

- Compare and contrast life expectancy with and active life expectancy
- Describe the CUPID criteria and list its components
- Compare and contrast the causes of death before and after 1900
- Compare and contrast the causes of death in developing and developed countries
- Compare and contrast the following terms: Chronological aging, Physiologic aging, Universal aging, Probabilistic aging, and Social aging
- Explain the concept of mortality doubling time
- Name and describe 4 experimental systems used to understand the genetics of aging
- List 5 molecules or systems that are "global" regulators of lifespan and explain their function

- Explain how genetic damage, oxidative stress, cellular senescence, immune senescence, stem cells, apoptosis, telomeres, and checkpoint controls all contribute aging or diseases associated with being old
- Explain the concepts of Mutation accumulation and Antagonistic Pleiotropy
- Describe the characteristics of the Hayflick limit
- Describe how hormeosis explains how caloric restriction contributes to longevity
- Describe the relationship between caloric restriction, sirtuins and IGF signaling, and how these contribute to longevity.
- Explain the theory behind why is red wine good to promote longevity
- Name the 2 most important ways to improve active life expectancy
- Describe the characteristics of Hutchinson-Gilford Progeria syndrome, Werner's Syndrome,and Downs Syndrome
- Explain the role of the IGFR pathway, sirtuins, the Neuroendocrine system, and the immune system in Aging.
- Explain the role of DAF-2
- KEY WORDS AND PHRASES
    - Aging
    - Senescence
    - Lifespan
    - Oxidative stress
    - Cellular senescence
    - Immune senescence
    - Stem cells
    - Apoptosis
    - Telomere
    - Checkpoint control
    - Hormeosis
    - Caloric restriction
    - Sirtuins
    - IGF signaling
    - Pleotropism

TUESDAY NOVEMBER 12

Ms. Benford; Age 60

- Be able to give 5 examples of reversible and treatable conditions are that are often underdiagnosed and under treated in older patients.
- Be able to give 5 examples where functional ability and quality of life impact decision making in older patients.

Aging Physiology

- Give a general explanation of the difference between normal aging and disease.
- Explain the changes of body composition with aging and their impact on medication selection.
- Explain two structural and functional cardiac changes with aging, and their respective clinical implications.
- Explain two pulmonary changes with aging, and their impact on pulmonary function.
- Explain how normal aging predisposes the normal adult to constipation.
- Compare and contrast Phase I vs Phase II metabolism in the liver with respect to how they change with usual aging.
- Compare and contrast Phase I vs Phase II metabolism in the liver with respect to how these changes effect medication use in older patients.
- Describe two renal changes with aging and their clinical implications.
- Name at least one medication whose dosing changes with renal function.
- Name at least three hormonal changes that happen with aging.
- Name three changes in the aging female reproductive system.
- Name three changes in the aging male reproductive system, and their relationship with disease processes.
- Describe aging changes in three cognitive domains.
- Explain the differences between dementia and normal aging.
- Describe two changes in bone metabolism with aging and their clinical implications.
- Describe a change in muscle structure with aging and three functional implications.
- Explain three visual changes with aging and their clinical implications.
- Explain three auditory changes with aging and their clinical implications.
- Explain three skin changes with aging and their clinical implications.
- Describe and use age adjustment calculations for
    - Creatinine Clearance
    - Oxygen Saturation
    - Maximum Heart Rate
- KEY WORDS AND PHRASES
    - Hydrophilic
    - Lipophilic
    - Photoaging
    - Presbyopia
    - Presbycusis

- Atrial kick

Search for the Wholly Frail

- Describe the importance of repertoire and reserve in maintaining homeostasis
- Describe the relationship between homeostasis and homeostenosis
- Explain how homestenosis is variable within individuals
- Explain how homeostenosis is variable between individuals
- Describe how the concept of homeostenosis can be used to explain atypical disease presentation in older adults
- Compare and contrast frailty with aging
- Compare and contrast the Classic Syndrome model of disease with the Multifactorial Perspective of disease
- Describe the five component frailty model put forth by Boockvar and Meier how this model is used
- Describe at least 5 clinical consequences of frailty
- Explain the Decreasing Exponential Approximation of Life Expectancy (DEALE)
- Describe changes in magnitude of effect due to disease-related mortality rates as influenced by remaining life expectancy
- Give an example of how the DEALE may apply to a clinical scenario
- KEY WORDS AND PHRASES
  - Sarcopenia
  - Homeostasis
  - Homeostenosis
  - Decreasing Exponential Approximation of Life Expectancy (DEALE)
  - Competing mobidity

Nutrition and Aging

- Describe at least 3 potentially modifiable factors which impact the nutritional status of older adults
- Describe at least 3 physiologic changes of aging which impact nutrient requirements
- Name at least 5 nutrients for which older adults are at risk of inadequate intake
- Explain the health benefits and risks of weight loss in overweight and obese older adults
- Describe the role of medical nutrition therapy as provided by a registered dietitian
- Name a federally-funded program to enhance nutrition and food access for older, community-dwelling adults and explain how one would access these services
- KEY WORDS AND PHRASES
  - Food insecurity
  - Recommended Dietary Allowance
  - Sarcopenic obesity
  - Medical nutrition therapy

Skills Workshop

- Mobility Assessment
    - Describe the components of a comprehensive mobility assessments
    - Demonstrate a "get up and go" test
- Cognitive Assessment
    - Demonstrate a mini-mental status examination (MMSE)
    - Describe at least two advantages of the Mini Mental state examination for cognitive assessment
    - Describe at least two disadvantages of a Mini Mental State Examination for cognitive assessment
    - Explain how to interpret the results of a Mini Mental state Examination
    - Demonstrate the clock-draw test (CDT) in cognitive assessment
    - Describe what information the clock draw test provides
    - Explain how to interpret the results of a Clock-Draw test
    - Describe a Mini-Cog Test for cognitive assessment
    - Interpret a Mini-Cog test for cognitive assessment
- Elder Abuse
    - Describe four different types of elder abuse
    - Identify five risk factors for elderly abuse in patients and their caregivers" for
    - Describe five "red flags" for elder abuse
    - Explain how to report suspected elder abuse
- Polypharmacy
    - Define what is meant by The term "Potentially Inappropriate Medication" (PIM)
    - Identify at least five PIMs and explain why they are classified as a PIM
    - Describe at least two strategies for simplifying medication use in older adults
- Incontinence
    - Describe the basic anatomy of the urinary tract system
    - Describe four basic categories of incontinence and be able to correlate with the anatomic abnormality involved

WEDNESDAY NOVEMBER 13

Ms. Benford; Age 70

- Be able to give 3 examples of how social history, social circumstances, and social support influence clinical care
- Be able to give 3 examples where multidisciplinary team is advantageous in providing care

Built Environment and Aging

- Explain how physical and sensory changes with aging may lead to person-environment misfit
- Explain at least three common design problems for older people found in the kitchen
- Explain at least three common design problems for older people found on stairs
- Explain at least three common design problems for older people found in bedrooms
- Explain at least three common design problems for older people found at entrances to public buildings
- Explain at least three common design problems for older people found in public buildings
- KEY WORDS AND PHRASES
    - Built environment
    - Quality of life
    - Person-Environment Misfit
    - Universal design

Sites of Care

- Describe the demographics of where older Americans live and contrast the differences in sites of care between older men and women.
- List 5 Activities of Daily Living and 5 Instrumental Activities of Daily Living that can be used to assess a patient's functional status.
- Describe at least four sites of care for seniors. For each site of care, describe the patient characteristics that would be typical of a person living in that site.
- Given a case example, determine what site of care would be most appropriate for a patient
- Describe how long term care in a nursing home is financed.
- KEY WORDS AND PHRASES
    - Assisted Living Facility (ALF)
    - Personal Care Home
    - Skilled Nursing Facility (SNF)
    - Home Health Care
    - Activities of Daily Living (ADLs)
    - Instrumental Activities of Daily Living (IADLs)
    - Medicare
    - Medicaid

Technology, Rationing and Longevity

- Discuss three positive, and three negative repercussions to individuals related to the increases in longevity made possible by technologically advanced life-prolonging treatments in frail older adults.
- Debate the health policy implications of limiting access to at least one of these specific technologies (e.g., implantable cardioverter-defibrillators).
- Give specific examples of rationing in healthcare.
- Frame a hypothetical discussion with a patient and his/her loved ones around the use of treatments like an ICD in the context of their values and goals of care.

THURSDAY NOVEMBER 14

Ms. Benford; Age 80

- Explain how cognitive and affective disorders may be overlooked at early stages
- Explain at least three red flags for the presence of a cognitive of affective disorder
- Describe at least five common iatrogenic illnesses
- KEY WORDS AND PHRASES
    - Iatrogenic illness

Gait and Function in the Elderly

- Describe the close relationship between physical function and important health outcomes in the older adult
- Enumerate the basic activities of daily living (ADLs) and know which ones tend to be lost early, and which ones later
- Enumerate instrumental ADLs
- Describe ways in which a normal older adult's gait may vary from that of a younger person
- Describe common causes of gait problems in the elderly
- Describe specific maneuvers to assess an elderly person's gait
- Describe risk factors for falls, including specific medication classes most commonly associated with them
- For a given falls scenario, propose specific interventions to decrease the probability of future falls.

Illness Trajectory and Palliation

- Describe and give a specific example of four different illness trajectories
- Describe the specific approaches to the following conditions at the end of life:
    - Weakness
    - Malnutrition
    - Dehydration
    - Delirium
    - Dysphagia
    - Nausea/vomiting
    - Constipation
    - Pressure ulcers
    - Pain
    - Dyspnea
- KEY WORDS AND PHRASES
    - Illness trajectory
    - Anorexia
    - Cachexia
    - Nausea
    - Vomiting
    - Nocioceptive Pain
    - Neuropathic Pain
    - Dyspnea

Chronic Disease Management

- Give 5 examples of chronic medical conditions
- Compare and contrast acute and chronic disease management modalities
- List and describe the 6 interrelated components of the Chronic Care Model
- Describe the roles of 5 members of a multidisciplinary team in chronic disease management
- Describe the steps of management of a patient with Heart Failure using the Chronic Care Model

Sandwich Generation

- Define caregiver burden
- Compare and contrast the challenges of caring for a person with dementia with the challenges of caring for someone cognitively intact but physically disabled
- Explain the relationship between functional impairment, financial burden, and behavioral problems with respect to caregiver burden
- Describe the health consequences of caregiving
- five sources of caregiver stress
- Describe at least two programs that can reduce caregiver burden
- KEY WORDS AND PHRASES
    - Caregiver Stress
    - Caregiver Burden

FRIDAY NOVEMBER 15

Please note that material from Friday will not be in the final exam.

Death and Dying

- Understand and describe your feeling towards the topic of death and dying
- Demonstrate effective communication skill for breaking bad news
- Identify sites of death in the United States and their relative frequency of use
- Describe the potential roll of Hospice in end-of life care
- Define advance directives
    - Living will
    - Health care proxy

Polypharmacy

Skills Workshop

Objectives

1. Discuss basic principles for safe prescribing for elderly patients.
2. Describe the categories of medications most likely to cause adverse reactions or drug interactions for the elderly.

Workshop Activities

Prior to the session students will receive a written case. The goal will be for students to look up the medications on the list, their general categories, and whether they are appropriate for an elderly patient. The homework document is attached. The students will use the *Journal of the American Geriatrics Society* article and pocket card on the Beers' criteria as a reference.

The day of the workshop, the preceptor will discuss polypharmacy issues with the students.

Answer Key:

1. The patient has two bottles of furosemide (Lasix). Also, he is taking potassium. Diuretics like furosemide affect potassium levels, so his electrolytes should be checked.
2. He also has two bottles of diazepam (Valium). Diazepam, a long-acting benzodiazepine, is inappropriate for use in the elderly. It is long-acting, and in an older patient, it could stay in the body even longer, because it is stored in fat. The percentage of body fat is higher in older adults.
3. He takes Indomethacin. This is on the Beers' list of inappropriate medications. NSAIDs for chronic use are to be avoided for chronic use in older persons, but indomethacin in particular is to be avoided even for short term use.
4. He is on lisinopril, atenolol, terazosin, and furosemide, which can all lower blood pressure. Individually, they are not necessarily inappropriate, but they could lead to orthostatic hypotension even at therapeutic doses.

After discussing the case, the preceptor will read a brief PowerPoint presentation on the topic.

Polypharmacy Skills Workshop

Case

Your patient, Mr. J., comes to your clinic for the first time with his son, with various concerns. He says that his father has been having increasing falls and confusion. He brought a large bag full of medications. These include:

1. Furosemide 20 mg po bid	9. Valium 10 mg PO qhs prn
2. Potassium chloride 16 mEq po q am	10. Aspirin 325 mg po daily
3. Atenolol 100 mg po q am	11. Tenormin 50 mg PO daily
4. Lisinopril 20 mg daily	12. Lasix 40 mg PO daily
5. Indomethacin 25 mg po BID	13. Terazosin 5 mg po QHS
6. Diazepam 5mg po qhs prn for sleep	14. Fosamax 35 mg po weekly
7. Oxybutynin 5 mg PO BID	15. Donepezil 10 mg po QHS
8. Paroxetine 20 mg daily	16. Digoxin 0.25 mg po daily

Your assignment is to look up each of these medications and their function, as well as whether they are potentially inappropriate for an elderly patient. As a group, on the day of the workshop, you will decide which medications you would keep, and which you would discontinue.

Reference:
American Geriatrics Society 2012 Beers Criteria Update Expert Panel. American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults. J Am Geriatr Soc. 2012 60(4):616-31.

Pocket reference is here:
http://www.americangeriatrics.org/files/documents/beers/PrintableBeersPocketCard.pdf

SAMPLE SCHEDULE

Time	Monday Nov 11	Tuesday Nov 12	Wednesday Nov 13	Thursday Nov 14	Friday Nov 15
8:00-8:30	Cells to Seniors: Overview (Eskildsen)	Patient Interview: Age 60 (Eskildsen)	Patient Interview Age 70 (Eskildsen)	Patient Interview (Eskildsen)	Small Group Death and Dying (Flacker/Eskildsen)
8:30-9:00	Patient Interview: Age 50 (Eskildsen)	Putting It all Together: Aging Systems (Eskildsen)	The Built Environment (Flacker)	Illness Trajectory and Palliation (Flacker)	Small Group Death and Dying (Flacker/Eskildsen)
9:00-9:30	Basics In Geriatrics "BIG" 10 (Flacker/Clevenger)	Putting It all Together: Aging Systems (Eskildsen)	Sites Of Care (Mirk)	Gait and Function (Eskildsen)	Small Group Death and Dying (Flacker/Eskildsen)
9:30-10:00	Basics In Geriatrics "BIG" 10 (Flacker/Clevenger)	Putting It all Together: Aging Systems (Eskildsen)	Sites Of Care (Mirk)	Gait and Function (Eskildsen)	Small Group Death and Dying (Flacker/Eskildsen)
10:00-10:30	Basic Science Of Aging (Kalman)	The Search for the Wholly Frail (Flacker)	Small group discussion Aging/Longevity	Chronic Disease Management (Ohuabunwa)	Case Study: The Dying Patient (Eskildsen/Flacker)
10:30-11:00	Basic Science Of Aging (Kalman)	The Search for the Wholly Frail (Flacker)	Small group discussion Aging/Longevity	Chronic Disease Management (Ohuabunwa)	Case Study: The Dying Patient (Eskildsen/Flacker)
11:00-11:30	Aging, Evolution & Genetics (Kalman)	Aging and Nutrition (Vaughan)	Small group discussion Aging/Longevity	Sandwich Generation (Eskildsen)	The Palliative Care Experience (Parker)
11:30-12:00	Aging, Evolution & Genetics (Kalman)	Aging and Nutrition (Vaughan)	Small group discussion Aging/Longevity	Sandwich Generation (Eskildsen)	The Palliative Care Experience (Parker)
12:00-1:00	**L**	**U**	**N**	**C**	**H**
1:00-2:00		Geriatric Care Skills Workshop (Eskildsen)	OPEX	OPEX	MODULE EXAM
2:00-3:30		Geriatric Care Skills Workshop (Eskildsen)			
Color Key	Patient Simulation	Guests	Assignment Debriefing	Small group activity	Lecture